

Application No.: 10/015154

Case No.: 57385US002

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Cls 1-23, 29 + 30
112, 2d
✓

(Currently amended) A melt processable fluorothermoplastic composition comprising a major amount of a first fluoropolymer, wherein the first fluoropolymer comprises a semi-crystalline fluorinated copolymer, and a minor amount of a second fluoropolymer effective to reduce melt defects in the composition, each fluoropolymer being selected from:

- (a) a semi-crystalline perfluorinated copolymer;
- (b) a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer, [[and]] at least one non-fluorinated hydrogen-containing monomer, and optionally, perfluorobutyl-ethylene and/or no more than about 1% by weight of other partially fluorinated monomers;
- (c) a fluoropolymer derived from interpolymerized units of at least one partially fluorinated monomer, and optionally at least one essentially perfluorinated monomer; and
- (d) an amorphous copolymer of tetrafluoroethylene and hexafluoropropylene;

wherein when the first fluoropolymer is selected from (a), the second fluoropolymer is a semi-crystalline fluoropolymer selected from (b) and/or (c);
 when the first fluoropolymer is selected from (b), the second fluoropolymer is selected from (a), (c), and/or (d); and

when the first fluoropolymer is a copolymer selected from (c), the second fluoropolymer is selected from (a), (b), and/or (d);

[J (C) required]

with the proviso that, when the melt processable fluorothermoplastic composition comprises one or more copolymers selected from (c), the melt processable fluorothermoplastic composition comprises either: at least about 80% by weight of copolymers selected from (c) or no more than about 5% by weight of copolymers selected from (c).

2. (Currently amended) The composition of claim 1 wherein the first fluoropolymer fluorinated copolymer comprises a semi-crystalline perfluorinated copolymer.

3. (Currently amended) The composition of claim 2 wherein the first fluoropolymer ~~fluorinated copolymer~~ comprises a copolymer of TFE with HFP and/or a PAVE.
4. (Original) The composition of claim 3 wherein the level of HFP is from about 10 to about 20% by weight.
5. (Original) The composition of claim 3 wherein the level of PAVE is from about 2 to about 10% by weight.
6. (Currently amended) The composition of claim 2 wherein the second fluoropolymer comprises: (i) a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer, and/or (ii) a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and optionally at least one essentially perfluorinated monomer.
7. (Currently amended) The composition of claim 6 wherein the essentially perfluorinated monomer comprises TFE and/or HFP and the non-fluorinated hydrogen-containing monomer comprises ethylene and/or propylene.
8. (Original) The composition of claim 7 wherein the level of non-fluorinated hydrogen-containing monomer is about 10% by weight or greater.
9. (Original) The composition of claim 6 wherein the second fluoropolymer is derived from interpolymerized units of TFE and ethylene, and optionally HFP, a PAVE, and/or PFBE.
10. (Original) The composition of claim 6 wherein the second fluoropolymer is derived from interpolymerized units of TFE and propylene.

11. (Original) The composition of claim 3 wherein the second copolymer is derived from interpolymerized units of TFE and ethylene, and optionally HFP, a PAVE, and/or PFBE.
12. (Currently amended) The composition of claim 1 wherein the first fluoropolymer ~~fluorinated copolymer~~ comprises a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer.
13. (Original) The composition of claim 12 wherein the first fluoropolymer is derived from interpolymerized units of TFE and ethylene, and optionally HFP, PPVE-1, and/or PFBE.
14. (Original) The composition of claim 12 wherein the second fluoropolymer comprises a semi-crystalline perfluorinated copolymer; and/or a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and optionally at least one essentially perfluorinated monomer.
15. (Original) The composition of claim 14 wherein the second fluorinated copolymer comprises a copolymer of TFE with HFP and/or a PAVE.
16. (Currently amended) The composition of claim 1 wherein the first fluoropolymer ~~fluorinated copolymer~~ comprises a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and at least one essentially perfluorinated monomer.
17. (Original) The composition of claim 16 wherein the partially fluorinated monomer comprises VF2 and the essentially perfluorinated monomer comprises TFE, HFP, and/or a PAVE.

18. (Currently amended) The composition of claim 16 wherein the first fluoropolymer ~~fluorinated copolymer~~ comprises interpolymerized units of VF2, TFE, and HFP, and optionally a PAVE.
19. (Original) The composition of claim 17 wherein the amount of VF2 comprises from about 5 to about 40% by weight.
20. (Original) The composition of claim 17 wherein the amount of VF2 comprises from about 5 to about 20% by weight.
21. (Original) The composition of claim 16 wherein the second fluoropolymer comprises a semi-crystalline perfluorinated copolymer; and/or a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer.
22. (Original) The composition of claim 1 wherein the first fluoropolymer comprises interpolymerized units of TFE, HFP, and from about 5 to about 20% by weight of VF2, and the second copolymer comprises interpolymerized units of ethylene and/or propylene, and TFE and/or HFP.
23. (Currently amended) The composition of claim 1 wherein the second minor fluoropolymer further comprises an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated; and/or an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether.
24. (Currently amended) A melt processable fluorothermoplastic composition comprising a major amount of a first fluoropolymer, wherein the first fluoropolymer comprises a semi-crystalline fluorinated copolymer, and a minor amount of a second fluoropolymer

effective to reduce melt defects in the composition, the second fluoropolymer being selected from:

- (a) an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated; and/or
- (b) up to about 5% by weight of an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether.
25. (Currently amended) The composition of claim 24 wherein the second minor fluoropolymer comprises at least about 5 mol% of an hydrogen containing comonomer.
26. (Currently amended) The composition of claim 24 wherein the second minor fluoropolymer comprises a perfluoro (alkoxy vinyl) ether wherein the alkoxy group contains 2 to 6 carbon atoms.
27. (Currently amended) The composition of claim 24 wherein the second minor fluoropolymer comprises a perfluoro (alkyl vinyl) ether wherein the alkyl group contains 1 to 5 carbon atoms.
28. (Currently amended) The composition of claim 24 wherein the second minor fluoropolymer comprises a hydrogen containing comonomer selected from vinylidene fluoride, trifluoroethylene, ethylene, propylene, and combinations thereof.
29. (Original) An article comprising the composition of claim 1.
30. (Original) The composition of claim 1 in the form of a container, film, hose, tubing, or wire coating.
31. (Withdrawn) A method of improving extrusion properties in an extrudate comprising

(a) blending a major amount of a first semi-crystalline fluoropolymer and a minor amount of a second fluoropolymer effective to improve extrusion properties in the composition, and

(b) melt processing the blend to form the extrudate, wherein each fluoropolymer is selected from class:

- (i) a semi-crystalline perfluorinated copolymer;
- (ii) a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer;
- (iii) a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and optionally at least one essentially perfluorinated monomer;
- (iv) an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated, and/or an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether; and
- (v) an amorphous copolymer of tetrafluoroethylene and hexafluoropropylene; wherein when the first fluoropolymer is selected from (i), the second fluoropolymer is a fluoropolymer selected from at least one material of class (ii), a semi-crystalline material of class (iii), and/or a material from class (iv); when the first fluoropolymer is selected from (ii), the second fluoropolymer is selected from (i), (iii), (iv) and/or (v); and when the first fluoropolymer is a copolymer selected from (iii), the second fluoropolymer is selected from (i), (ii), (iv) and/or (v).

32. (Withdrawn) The method of claim 31 wherein the first fluorinated copolymer comprises a semi-crystalline perfluorinated copolymer.
33. (Withdrawn) The method of claim 32 wherein the second fluoropolymer comprises a fluoropolymer derived from interpolymerized units of at least one essentially

perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer; a semicrystalline fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and optionally at least one essentially perfluorinated monomer; and/or

an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated, and/or an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether.

34. (Withdrawn) The method of claim 31 wherein the first fluorinated copolymer comprises a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer.
35. (Withdrawn) The method of claim 34 wherein the second fluoropolymer comprises a semi-crystalline perfluorinated copolymer; and/or a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and at least one essentially perfluorinated monomer.
36. (Withdrawn) The method of claim 34 wherein the second fluoropolymer comprises an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated, and/or an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether.
37. (Withdrawn) The method of claim 31 wherein the first fluorinated copolymer comprises a fluoropolymer derived from interpolymerized units of at least one partially-fluorinated monomer, and at least one essentially perfluorinated monomer.

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38. (Withdrawn) The method of claim 37 wherein the second fluoropolymer comprises a semi-crystalline perfluorinated copolymer; a fluoropolymer derived from interpolymerized units of at least one essentially perfluorinated monomer and at least one non-fluorinated hydrogen-containing monomer; and/or an amorphous fluorinated copolymer derived from interpolymerized units of a perfluoro (alkoxy vinyl) ether and a comonomer which may be partially or fully fluorinated, and/or an amorphous fluorinated copolymer derived from interpolymerized units of at least 3 mole percent (mol%) of an hydrogen containing comonomer, and a perfluoro (alkoxy vinyl) ether and/or a perfluoro (alkyl vinyl) ether.
39. (Withdrawn) The method of claim 31 wherein the improved extrusion property is selected from reduced melt defects, reduced extruder torque, reduced extrusion pressure, improved surface properties, and combinations thereof.
40. (Withdrawn) The method of claim 31 wherein the minor amount of second fluoropolymer comprises less than about 1 part by weight of the blend.